

Elements of Comet 1886 e (Finlay). By W. H. Finlay, M.A.

The following elements represent my observations of this comet closely. A normal place was deduced from the observations on September 26, 27, 29, and 30, and another from those on December 13, 15, 16 and 17; these were:

Sept. 28.5	$\alpha = 256^{\circ} 48' 38''.2$	$\delta = -26^{\circ} 10' 51''.0$
Dec. 15.5	$\alpha = 336^{\circ} 51' 52''.2$	$\delta = -10^{\circ} 49' 16''.0$

From these, by varying the geocentric distances to satisfy the observations on October 21, November 13, and December 27 (on which dates very good places were available for the comparison stars), I obtained the elements

T = Nov. 22.3918, G.M.T.

ω	$315^{\circ} 5' 47''.0$	} Ecliptic and Mean Equinox 1886.0
Ω	$52^{\circ} 29' 15''.2$	
i	$3^{\circ} 1' 38''.6$	
ϕ	$45^{\circ} 51' 51''.6$	
$\log a$	0.5482066	
μ	$534''.1911$	

The representation of the observations on October 21, November 13, and December 27 is

	C - O	
	$d\lambda \text{ as } \beta$	$d\beta$
Oct. 21	$+0''.7$	$+3''.3$
Nov. 13	$+0.6$	$+5.1$
Dec. 27	-0.8	-2.9

I discontinued my observations when the comet passed to the north of the equator, and was more favourably situated for observation in the northern hemisphere, so that I have no later date than December 27 to compare with the elements. The discordances in latitude are persistent in all the variations of the distances. The heliocentric co-ordinates are

$$\begin{aligned} x &= [9.9996185] r \sin (97^{\circ} 32' 43''.0 + v) \\ y &= [9.9562980] r \sin (8^{\circ} 40' 46''.9 + v) \\ z &= [9.6324689] r \sin (2^{\circ} 28' 49''.5 + v) \end{aligned}$$

Royal Observatory, Cape of Good Hope:
1887, February.

Comet 1887 a. By W. H. Finlay, M.A.

The tail of this remarkable comet was first seen, so far as I am aware, by a farmer and a fisherman at Blauwberg (near Cape Town), on Tuesday night, January 18; the next evening it was seen at Grahamstown, Fraserburg, &c.; our first view of it at the observatory was on January 22. It presented the appearance of a pale narrow ribbon of light, quite straight, and of nearly uniform brightness throughout its length. There was no head or condensation of any kind visible near the end, the light simply fading away to nothing. The comet was lost in the 6-inch Equatorial long before the end of the light, as visible to the naked eye, was reached. The following rough observations were made by tracing the tail down as far as possible with the finder of the 6-inch and reading the circles of the Equatorial. On January 24 and 27 the circles were also read for the centre of a very slightly more condensed part of the tail, extending over about half a degree. A star near the same position was also observed in a similar manner each evening. The resulting places are:

Date.	Cape M.T.	App. R.A.	App. Dec.
	h m	h m s	
Jan. 22	8 50	21 30 0	-45 47 $\frac{1}{2}$
23	8 44	21 47 54	-46 32 $\frac{1}{2}$
24	8 50	22 8 15	-47 35
24*	8 55	22 9 20	-47 54 $\frac{1}{2}$
25	9 4	22 30 44	-48 39
27	8 58	23 16 10	-49 38
27*	9 35	23 17 11	-49 50
28	9 38	23 37 12	-49 22

The observations marked * are of the centre of the slightly brighter part of the tail. Moonlight put a stop to any further observations. The tail was sketched each night on a map copied from Gould's *Uranometria*; it was quite straight at first, but on the 27th, 28th, and 29th a slight curvature was perceptible.

The physical appearance of the comet, its long straight tail of no greater brilliancy than the smaller Magellanic cloud, and the absence of head at once recalled to mind the comet of February 1880, and as soon as I had secured a place on January 22 I tried whether the observed place could result from the elements of that comet. I found that it could very nearly with a true anomaly of 168°·7 and perihelion passage

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